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CAMPBELL, ROALD F. (1905–1988)

Born in Ogden, Utah, Roald Fay Campbell was reared on a farm near Aberdeen, Idaho, and first attended Idaho Technical Institute (now Idaho State University) in Pocatello. He took several years off from college to serve as a Mormon missionary in Texas and to teach school, then resumed his undergraduate studies at Brigham Young University.

After graduating from Brigham Young at age twenty-four, Campbell returned to southern Idaho as superintendent of schools in the rural town of Moore and then took a similar post in larger Preston. After four years there, during which he spent his summers earning a master's degree at Brigham Young University, his native curiosity and ambitious instincts prompted him to seek a doctorate and pursue a scholarly career. Campbell was accepted into the doctoral program at Stanford University's School of Education. Over the next six years, he continued to serve as superintendent of schools in Preston while pursuing his studies each summer.

He took a leave of absence from his job during the 1939 to 1940 academic year and began his dissertation study, an inquiry into the relationship between school board members' socioeconomic status and their voting records on educational issues. Stanford awarded Campbell his doctorate in the autumn of 1942. At the same time, he left the Preston school superintendency, and launched his long and successful professorial career.

He accepted a three-faceted appointment at the University of Utah as assistant professor and chair of the Department of Elementary Education, and director of the Wm. M. Stewart School—a laboratory school associated with the teacher education program at the university. Over the next decade, Campbell advanced through the ranks of associate professor and professor, while continuing to dispatch his dual administrative duties. He became a specialist in the emerging scholarly field of educational administration and found his research increasingly gratifying. Wishing to work single-mindedly as a scholar, and to spread his wings beyond the Great Basin, he moved to The Ohio State University as professor of educational administration in 1952. Over the next five years his research and writing about educational leadership was recognized nationally and internationally.

Campbell moved to the University of Chicago in 1957, where he served variously over a thirteen-year period as William C. Reavis Professor of Educational Administration, director of the Midwest Administration Center, chair of the Department of Education, and dean of the Graduate School of Education. These years were clearly the apogee of his career. Under his leadership, the University of Chicago achieved international renown as one of several premier institutions for scholarship in education and school administration. During his Chicago years, Campbell became a charter member of the National Academy of Education and of the board of directors of the University Council for Educational Administration. He served as founding editor of the *Educational Administration Quarterly,* president of the American Educational Research Association (1969–1970), and received may honors and awards. He wrote or coauthored more than a dozen books, many of which were landmarks in his field.

Living in an era that seemed to reduce everything to its parts and every scholar to a specialist, Roald Campbell stood as an exception. His was a lifelong quest to understand, bring together, and refine knowledge that could improve education. He read widely in many fields, studied other cultures, questioned every proposition about education and leadership, and ultimately struck every idea against the touchstone of reality: Could it work to further improve what we know and how we act as educators? His passion to form and integrate ideas was matched by his desire to influence events and institutions. Teacher and mentor to dozens of distinguished scholars and educational leaders throughout North America and the world, Campbell was a professor's professor—admired as much for his humane instincts and reasoned personal qualities as for his enduring professional achievements. To paraphrase Matthew Arnold, he lived life steadily and he lived it whole.

Beginning a remarkable retracing of his life's journey, Campbell returned to Ohio State in 1970 as the first Novice G. Fawcett Professor of Educational Administration. There he launched a massive national study of state policymaking for public education. He also opened a new domain of scholarship for himself and his field—the history of thought and practice in educational leadership. This theme shaped his intellectual activity during the 1970s. He started by assaying the existing state of scholarship and graduate education in educational administration, coauthoring a comprehensive study of professors in his field. From this base, with a group of younger colleagues, he began to explore the historical roots and philosophical underpinnings of educational administration.

In 1974 Campbell retired from the Fawcett Professorship and moved with his wife back to Salt Lake City to be closer to their children and grandchildren. But retirement was not in the cards. The University of Utah named him a distinguished adjunct professor, the first appointment of its kind. Over the next fourteen years he taught a variety of courses in the Department of Educational Leadership, and continued to research and publish at a prolific rate. He devoted enormous time and energy in fostering the growth of younger colleagues. In 1988, while visiting his sister in Aberdeen, Idaho, Campbell died suddenly of heart failure. He was 82. His customary autumn graduate seminar was scheduled to convene a few days later, and he left the course syllabus as well as a complete book manuscript stacked neatly on his University of Utah desk. Roald Fay Campbell was arguably the twentieth century's most influential and respected figure in the scholarly field of educational leadership.

See also: Dewey, John; Immigrant Education, ***subentries on*** International, United States; Migrants, Education of.

BIBLIOGRAPHY

Campbell, Roald F.; Cunningham, Luvern L.; and McPhee, Roderick F. 1980. *The Organization and Control of American Schools* (1960), 4th edition. Columbus, OH: Merrill.

Campbell, Roald F.; Fleming, Thomas L.; Newell, L. Jackson; and Bennion, John. 1987. *A History of Thought and Practice in Educational Administration.* New York: Teachers College Press, Columbia University.

Campbell, Roald F., and Mazzoni, Tim L., Jr. 1976. *State Policy Making for Public Schools.* Berkeley: McCutchan.

L. Jackson Newell

CANADA

As in all immigrant societies, the spread of formal education in Canada followed a predictable pattern as religious orders and missions attempted to "civilize" both the aboriginal and the settler communities. All levels of formal education from the seventeenth century onward had their roots in Catholicism, Anglicanism, and after 1763, when the British assumed control, a whole range of protestant denominations. Dramatic change occurred in 1867 with the enactment of the Constitution Act (formerly the British North American Act) when the principle of secular and separate systems of education funded by the state was accepted throughout Canada with a few significant exceptions. Section 98 of the act allocated exclusive jurisdiction for education to the provinces. This division of constitutional powers has remained in place and has been the basis for a degree of tension between the federal government and the ten provincial governments. The federal government is responsible for education in the three northern territories. With regard to public educa-

tion, Canadians subscribe to three common social and educational values: equality of access, equality of opportunity, and cultural pluralism.

Influences on the Educational Systems

According to Rodney Clifton, Canada is the "only country without a national office of education: all other nations, including all other federated nations, have national offices of education that coordinate and/or administer various aspects of their educational system" (p. 7). While there are many similarities among Canada's systems of education, they have each developed in unique ways. These systems are profoundly influenced by the distribution of the population of 31 million across the vast country, which covers four and one-half time zones. More than 80 percent of Canadians live in urban centers within 100 miles of the border with the United States.

Canadian society has developed as a mosaic of peoples, beginning with aboriginal populations and then followed by French, British, and other European settlement. Canada has two official languages: English is the mother tongue of 61 percent of the population, and French is the mother tongue of 26 percent. Most French speakers live in Quebec, where they make up 82 percent of the population, but there are also many French speakers in New Brunswick, Ontario, and Manitoba. Education is available in both official languages, but to a greater or lesser degree, depending on the region. In the last two decades of the twentieth century, immigrants from all parts of the world were attracted to Canada, with the largest proportion coming from Asia.

The patterns of immigration have had an enormous impact on the structure and organization of educational systems. Although the systems of the western provinces of Manitoba, Saskatchewan, Alberta, and British Columbia followed the patterns laid down in Ontario, more emphasis was placed on meeting the needs of all people, not just Anglicans and Catholics. While "separate" (Catholic) publicly funded schools were resisted in Manitoba, by World War II only British Columbia, out of the ten provinces, maintained a secular system of education. This stance was modified in 1977, when the province began providing subsidy to private and independent schools. In 1998 Newfoundland abandoned denominational education and became the only province with a secular system.

The French tradition and language have dominated educational systems in Quebec and parts of New Brunswick and Manitoba. Since the "Quiet Revolution" in Quebec in the 1960s and the adoption of a bilingual and multicultural policy at the federal level in the 1970s, French culture has become part of all Canadian educational systems. The challenge has been to privilege the "founding" cultures while at the same time recognizing aboriginal peoples and the vast range of other cultures that form Canadian society. The complexities that come with geography, immigration, and settlement gave rise to socialization processes that placed great emphasis on the role of education in molding Canadian citizens.

Twentieth-Century Developments

The "Great Transformation" in Canadian society, as it was dubbed by Karl Polanyi in 1944, is very much a twentieth-century phenomena. Mass public education that was free and compulsory through high school had become the norm by the 1950s. Public education is provided free to all Canadian citizens and permanent residents until the end of secondary school, normally at eighteen. The ages for compulsory schooling vary from one jurisdiction to another, but generally it is required from age six or seven to age sixteen. As the federal government assumed more responsibility for funding university education from the mid-1950s and recognized the importance of human capital, so the systems of higher education expanded. Expansion of the university system and the development of parallel college systems changed the nature of higher education in Canada. By 1976 every province was operating a binary system of universities and colleges, and furthermore the number of universities offering graduate programs had risen to forty-seven from the 1960 level of twenty-eight.

As in other countries of the Organisation for Economic Co-operation and Development (OECD), the baby boom generation flooded into the higher education system in the 1960s and the early 1970s. Enrollment continued to expand into the 1990s, but over the next decade it reached a plateau and then began to decline. Between 1991–1992 and 1999–2000, university full-time enrollment decreased from approximately 580,000 to 540,000, while part-time enrollment fell from 280,000 to 240,000. Between 1992–1993 and 1999–2000, full-time community college enrollment increased from approximately 360,000 to 400,000. Part-time community college enrollment declined from approximately

180,000 to 90,000. Furthermore, the gender balance has been reversed so that women are in the majority at the undergraduate level in both community colleges and universities and at parity with men at the graduate level.

The federal government had, through the incremental development of a science and technology policy, created an elaborate structure for funding and supporting research. In addition to the three national funding councils, which were established in the late 1970s and cover all the disciplines and fields represented in the academy, the government created other programs, such as the Networks of Centres of Excellence, the Canada Foundation for Innovation, and the Canada Research Chairs.

Education in Canada has traditionally been a public enterprise. Private or independent schools educate approximately 5 percent of the school-age population. Although these schools do generally follow the curriculum and diploma requirements of their jurisdiction, they function independently of the public system and charge fees. Five provinces—Alberta, British Columbia, Manitoba, Quebec, and Saskatchewan—provide some form of financial assistance to these schools. Prior to the 1990s, higher education was almost totally a public enterprise. During that decade the number of private institutions offering vocational and degree programs increased dramatically. Four provinces—Alberta, British Columbia, Ontario, and New Brunswick—have passed legislation to allow for the establishment of private universities.

The Place of Education in the Society

As an institutional form, education occupies a unique place in Canadian society. By the late 1960s, education had become a central legitimating institution in the modern Canadian state. Between 1960 and 1995–1996, the cost of public education increased from $1.7 billion to almost $60 billion. One in fourteen employed Canadians work in education, and 25 percent of the total population is involved with education. Public education is a major industry involving approximately 16,000 elementary and secondary schools, 200 postsecondary colleges, 75 universities and university colleges, 300,000 teachers, and 60,000 instructors and professors.

Relative to other developed countries, Canada invests a substantial amount on education. At all levels of education, Canadian expenditure per student is second highest (after the United States) among the G-7 countries (the other G-7 members being France, Italy, Germany, Japan, and the United Kingdom) and is substantially above the OECD average. Canada's educational expenditure of 7 percent of gross domestic product is the highest level among the G-7 countries and is one of the highest in the OECD. Eighty percent of Canada's adult population has completed upper-secondary (referred to as high school in North America) or postsecondary education. This is much higher than the OECD average of 64 percent. Fifty-two percent of the adult population has completed postsecondary education. This rate is the highest in the OECD and double the OECD average. Yet it should be noted that this ranking is due to the very high proportion of the population that is enrolled in nonuniversity postsecondary education.

By the mid-1990s, Canadian governments had created a mass postsecondary system. With a participation rate of more than 40 percent for eighteen- to twenty-one-year-olds, Canada ranked first among OECD nations. The system can be characterized as soft federalism. While the federal government has since the 1950s shouldered a significant portion of the bill for universities, constitutionally the responsibility has remained with the provinces. The level of institutional autonomy enjoyed by universities is probably more pronounced in Canada than in any other OECD country. The public monopoly over the binary structure (colleges and universities) accounts for the limited competition and the perceived equivalence among credentials across the country. This state public system is relatively homogeneous and, as a vestige of its roots in the United Kingdom and France, is still committed to the ethos of liberal education rather than vocationalism.

Issues and Problems

The key issues and problems facing the Canadian education systems are as follows: deprofessionalization; the dominance of a political-economic imperative in the formulation of state educational policy (accountability, privatization, market, choice, and decentralization); multiculturalism and diversity; restructuring and retrenchment; and the demographic changes facing all industrialized nations.

As governments have limited the size of the "public space" in Canadian society, so necessarily the ideals of professionalism have come under attack. On the one hand, the creation of professional

"colleges of teachers" in British Columbia (in 1986) and in Ontario (in 1996), as well as the current attempts for such undertakings in Quebec, are indicators of the professionalizing trend. Other such initiatives, also present in other provinces (namely, Alberta, New Brunswick, and Nova Scotia), aim at raising the standards in teacher training and at better controlling its quality through the definition of standards for training and practice. Yet the discourse of professionalism has in some respects been co-opted by the state and transformed into government by norms. The substitution of credentials for professional practice, while intended to support professionalization, serves instead to undermine it. Credentialism becomes the overriding trend and the substitute for the promotion of professionalism.

In the 1990s, accountability replaced autonomy in discussions of roles within the state. Accountability has also come to mean recognition of the dominance of market ideology. Governments press educational institutions and systems to be more responsive to the economy and to create alliances with the private sector. The accountability models are embedded within the broader, ideological mechanisms—variously characterized as public-sector reform, new public management, and the "evaluative state"—that have accompanied the political-economic transition from welfare state to the global economy.

The severe limitations on public expenditures are linked to the general suspicion of public institutions and a belief in the greater efficiency of free-market forces. The key policy terms that are the symbols of both market and accountability are "choice" and "privatization." The battle against federal and provincial deficits and the adoption of neoliberal assumptions concerning the role of the state has led governments to inflict considerable budget cuts on educational systems while looking to maximize their services. Yet while the position of the provinces got worse, by 2000 the federal government had moved into surplus. Efforts to decentralize responsibility and increase the autonomy of school boards and school staffs has translated into a more significant role for parents, the development of an "in-service training" culture, and the elaboration of school programs that promote the acquisition of competencies required in the new knowledge society. A parent council structure was created in British Columbia in 2002 and was already in place in six other provinces, including Ontario and Quebec.

For a majority of teachers in urban settings, the combination of immigration policy, the long-standing commitment to diversity and multiculturalism and the new emphasis on "inclusion" has created schools very different from the ones that existed in the 1980s. Schools can contain students who speak as many as eighty different languages, a high proportion of ESL (English as a second language) students, and many students with special needs. The increasing cultural and linguistic diversity has become most evident in the three major urban centers, Montreal, Toronto, and Vancouver. On the other hand, diversity and equality have been safeguarded and extended through the teaching of heritage languages, curriculum design, and the development of programs to combat racism. The development of French-language school boards across the country is a good indicator of this trend.

A major retrenchment and restructuring has occurred throughout Canada as provincial ministries have drastically reduced the number of school boards through amalgamation. These changes have been accompanied by a tightening of control over expenditures at the local level.

Skills and knowledge have become central elements in economic policy as human resource policy has become the modern equivalent of human capital theory in the 1960s. In postsecondary education there has been a growing emphasis on technical and professional programs. Universities are developing closer links with business and industry. Since the late 1980s, the shift has been toward more private and less public expenditure on postsecondary education. Part of this shift is related to the increase in tuition fees, which have more than doubled, but this trend also includes the rise in nongovernmental sources of funding for research.

The most pressing need in Canadian education systems and the society at large is the expected shortfall in the supply of professional personnel. By 2010, Canada will need to replace 50 percent of its teachers, instructors, and professors.

See also: Immigrant Education; International Education; Language and Culture; Multicultural Education.

BIBLIOGRAPHY

Axelrod, Paul. 1997. *The Promise of Schooling: Education in Canada, 1800–1914.* Toronto: University of Toronto Press.

Axelrod, Paul. 2002. *Values in Conflict: The University, the Marketplace, and the Trials of Liberal Education.* Montreal: McGill-Queen's University Press.

Canadian Association of University Teachers. 2002. *Almanac of Post-Secondary Education in Canada.* Ottawa, Ontario: Canadian Association of University Teachers.

Clifton, Rodney. 2000. "Post-Secondary Education in Canada, 1960–2000: The Best Years We Have Ever Had." Paper presented at the annual meeting of the Canadian Society for the Study of Education, Sherbrooke, Quebec, May 26.

Council of Ministers of Education, Canada. 1996. *The Development of Education: Report of Canada.* Toronto: Council of Ministers of Education, Canada.

Council of Ministers of Education, Canada, and Statistics Canada. 2000. *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program, 1999.* Toronto: Council of Ministers of Education, Canada; Ottawa, Ontario: Statistics Canada.

Dunning, Paula. 1997. *Education in Canada: An Overview.* Toronto: Canadian Education Association.

Fisher, Donald. 1991. *The Social Sciences in Canada: Fifty Years of National Activity by the Social Science Federation of Canada.* Waterloo, Ontario: Wilfrid Laurier University Press.

Fisher, Donald; Atkinson-Grosjean, Janet; and House, Dawn. 2001. "Changes in Academy/Industry/State Relations in Canada: The Creation and Development of the Networks of Centres of Excellence." *Minerva* 39:54–73.

Fisher, Donald, and Edwards, Gail. 1999. "The Legitimation of Education in Canadian Universities: A Social History of the Canadian Society for the Study of Education/Société Canadienne pour l'étude de l'éducation." In *A Challenge Met: The Definition and Recognition of the Field of Education,* ed. Michel Allard, James Covert, Collette Dufresne-Tassé, Angela Hildyard, and Michael Jackson. Ottawa, Ontario: Canadian Society for the Study of Education and University of Toronto Press.

Fleming, Thomas. 1993. *Review and Commentary on Schooling in Canada, 1993.* A Report to the United Nations Educational, Scientific and Cultural Organization International Seminar on Curriculum and Decentralization, Santiago, Chile, November 3–5.

Ghosh, Ratna, and Ray, Douglas, eds. 1995. *Social Change and Education in Canada,* 3rd edition. Toronto: Harcourt Brace.

Harris, Robin S. 1960. *A History of Higher Education in Canada, 1663 to 1960.* Toronto: University of Toronto Press.

Healy, Dennis. 1978. *Report of the Commission on Graduate Studies in the Humanities and Social Sciences.* Ottawa, Ontario: Social Sciences and Humanities Research Council of Canada.

Human Resources Development Canada. 1996. *Federal and Provincial Support to Post-Secondary Education in Canada: A Report to Parliament, 1994–1995.* Hull, Quebec: Human Resources Development Canada.

Organisation for Economic Co-operation and Development. 1996. *Education at a Glance: OECD Indicators.* Paris: Organisation for Economic Co-operation and Development.

Organisation for Economic Co-operation and Development. 2001. *Education at a Glance: OECD Indicators.* Paris: Organisation for Economic Co-operation and Development.

Pagliarello, Claudio. 1994. "Private Elementary and Secondary Schools." *Elementary Quarterly Review* 1(1):42–50.

Polanyi, Karl. 1944. *The Great Transformation.* New York and Toronto: Farrar and Rinehart.

Scott, Peter. 1995. *The Meanings of Mass Higher Education.* Buckingham, Eng.: Society for Research into Higher Education; Bristol, PA: Open University Press.

Sears, Alan, and Hughes, Andrew S. 1996. "Citizenship Education and Current Educational Reform." *Canadian Journal of Education* 21:123–142.

Statistics Canada. 1997. *Education in Canada, 1996.* Ottawa, Ontario: Statistics Canada.

Wotherspoon, Terry. 1998. *The Sociology of Education in Canada.* Oxford: Oxford University Press.

INTERNET RESOURCE

Centre of Education Research Information System. 2001. "Theme: Parents." <www.schoolnet.ca/ceris/e/Parents1.html>.

Donald Fisher

CAPSTONE COURSES IN HIGHER EDUCATION

In higher education, capstone courses, also known as senior seminars, offer undergraduate students nearing graduation the opportunity to summarize, evaluate, and integrate some or all of their college experience. The First National Survey of Senior Seminars and Capstone Courses conducted in 1999 suggested that these courses place the highest priority on culminating learning in the academic major. Enrollments in sections of senior seminars and capstone courses are most often kept at fewer than thirty students. These courses are generally treated as academic major or core requirements, most are at least one academic term in length, and most require a major project or presentation.

The earliest capstones can be traced to the end of the eighteenth century when college presidents taught courses generally integrating philosophy and religion. One of the most famous was a class at Williams College in Massachusetts taught by President Mark Hopkins that inspired, among others, future U.S. President James A. Garfield. Since its inception, the senior seminar has appeared and disappeared in colleges and universities throughout the United States.

The goals and methods of senior seminars and capstone courses in American higher education have been studied at least four times. The first was a study conducted in the early 1970s and sponsored by the Carnegie Council on Policy Studies in Higher Education. For this research, 270 catalogs from colleges and universities in the United States for the year 1975 were examined for course type and structure. The study found that only 3 percent of participating institutions sponsored senior seminars. Arthur Levine, the study's author, later concluded that these courses are offered, at any given time and in various forms, at one in every twenty institutions nationwide.

In a second effort, Joseph Cuseo evaluated proceedings from four national Conferences on the Senior Year Experience and two national Conferences on Students in Transition that convened in the 1990s. His work, centering on characterizing the types, goals, and forms of the senior year experience, including capstone courses, suggested the following goals for the senior year:

1. promotion of the coherence and relevance of general education;
2. promotion of integration and connections between general education and the academic major;
3. fostering of integration and synthesis within the academic major;
4. promotion of meaningful connections between the academic major and work and career experiences;
5. explicit and intentional development of important student skills, competencies, and perspectives that are tacitly or incidentally developed in the college curriculum;
6. enhanced awareness of and support for the key personal adjustments encountered by seniors during their transition from college to postcollege life;
7. improvement of seniors' career preparation and pre-professional development, that is, facilitation of the transition from the academic to the professional world;
8. enhancement of seniors' preparation and prospects for postgraduate education;
9. promotion of effective life planning and decision making with respect to practical issues likely to be encountered in adult life after college (for example, financial planning, marriage, family planning).

In August 2000 Jean Henscheid reviewed modern senior seminars and capstone courses in publication abstracts and presentations available on the Educational Resources Information Center (ERIC) database. The review suggested that these courses are most often associated with a specific academic discipline and coordinated through an academic department or unit. Also in 2000, the National Resource Center for the First-Year Experience and Students in Transition at the University of South Carolina reported results from a nationwide survey of colleges and universities. This survey, in addition to the findings reported above, revealed that coursework and other experiences students have before they enter the

academic major are generally not topics covered, at least in the 864 senior capstones or seminars described by these respondents.

Types of Courses

In the early twenty-first century senior seminars and capstone courses in higher education generally fall into one of five types. Varying goals, instructional strategies, and topics separate these course types.

Discipline- and department-based courses. The overriding goal of discipline- and department-based courses is to summarize learning within the academic major. These types of classes are also likely to make connections between the academic learning and the professional world. Some institutions use these courses as a means to encourage seniors to pursue postgraduate study. This subset of courses makes up the majority of the capstone courses offered. These courses are typically offered through the academic department and may be required for graduation. Faculty members within the academic discipline typically teach these courses at the conclusion of the students' academic careers. The classes are taught either by a single faculty member or team-taught by faculty members or staff; three hours of semester credit are normally offered for a letter grade. As this type of class is normally offered as the final "piece" of a student's academic major, credit for these classes is typically a requirement of the major. Topics for discipline and department-based courses vary by the academic major; but include issues that are relevant to the professions related to that major. These courses often use a major project and or presentation as a means for communicating and summarizing the student's academic learning.

Interdisciplinary courses. Interdisciplinary courses, representing a smaller percentage of senior seminars and capstones, offer students an opportunity to synthesize general education, major classes, and cocurricular learning. These courses are more likely to be found at private institutions, taught by a single faculty member. Letter grades are prevalent, and students receive three to four semester hours of credit for completing these courses. Credit for interdisciplinary senior seminars and capstone courses is applied most often as a major requirement, core requirement, or a general education requirement. Presentations and major projects are most often employed as instructional components in these courses. Topics are broad, often involving philosophical issues such as ethics. These courses tend to stress the interrelatedness of different academic majors and their role within society.

Transition courses. Transition courses, the third most prevalent type of senior seminars and capstones, focus on preparation for work, graduate school, and life after college. Faculty or career-center professionals most often teach these courses, which typically award a letter grade, although they are less likely to do so than discipline- and department-based courses and interdisciplinary courses. These classes generally earn the participating students one semester of credit.

Topics for transition courses mainly consist of students' transition issues, and students enrolled in them are likely to engage in job search and life transition planning. Discussions center around self-assessment, financial planning, the job search and the first year on the job, relationships, and diversity. Presentations weigh heavily in evaluation of performance in these courses, but rather than major projects, students often develop a portfolio or use the career center.

Career-planning courses. Career-planning courses assist students as they engage in pre-professional development. In some cases career planning is the only goal of these courses. In the 1999 First National Survey of Senior Seminars and Capstone Courses, these courses were the least frequently reported major type. Career planning courses are likely to be taught by career-center professionals, but in some cases academic faculty might teach them. Although students typically receive grades for these courses, they are less likely to receive as many credit hours as students enrolled in other types of senior seminars or capstone courses. The classroom experience in these courses is evaluated most often by the creation of a portfolio, followed by a major project and a presentation. Classroom topics for career-planning courses include current trends in the field, procedures for licensure and job seeking, students' roles in the workplace, and development of a résumé, cover letter, and portfolio.

Other. There are also a small number of senior seminars and capstone courses that do not fit in these four types. These courses often span curricular and cocurricular boundaries and attempt to address institutional goals. These courses do share many of the characteristics of other courses. The primary goals (fostering integration and synthesis within the academic major and promoting integration and con-

nections between the academic major and world of work) are similar to those of most types of the other senior courses. These courses do not generally focus on general education, and are almost always taught by a member of the academic faculty. They tend to be the smallest of the senior courses, often enrolling fewer than nine students. They are most often held for one academic term and students are usually assigned a letter grade.

The Future

As is true with many trends in higher education, senior seminars and capstone courses will likely continue to appear and disappear in various forms. Instructional technologies and the changing delivery of student services will affect the content and character of these courses in the future. This, along with changing student demographics and needs of the institutions offering them, will determine the future goals and structure of these courses.

See also: College Seminars for First-Year Students; Curriculum, Higher Education, ***subentries on*** National Reports on the Undergraduate Curriculum, Traditional and Contemporary Perspectives.

BIBLIOGRAPHY

Cuseo, Joseph B. 1998. "Objectives and Benefits of Senior Year Programs." In *The Senior Year Experience: Facilitating Reflection, Integration, Closure and Transition,* ed. John N. Gardner, Gretchen Van der Veer, and Associates. San Francisco: Jossey-Bass.

Gardner, John N.; Van der Veer, Gretchen; and Associates. 1998. *The Senior Year Experience: Facilitating Reflection, Integration, Closure and Transition.* San Francisco: Jossey-Bass.

Henscheid, Jean M. 2000. *Professing the Disciplines: An Analysis of Senior Seminars and Capstone Courses.* Columbia, SC: University of South Carolina, National Resource Center for The First Year Experience and Students in Transition.

Levine, Arthur. 1978. *Handbook of Undergraduate Curriculum.* San Francisco: Jossey-Bass.

Levine, Arthur. 1998. "A President's Personal and Historical Perspective." In *The Senior Year Experience: Facilitating Reflection, Integration, Closure and Transition,* ed. John N. Gardner, Gretchen Van der Veer, and Associates. San Francisco: Jossey-Bass.

Jean M. Henscheid
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CAREER COUNSELING IN HIGHER EDUCATION

The career services office supports the educational mission of a college or university by helping students to develop, evaluate, and pursue career goals. In the process, students acquire the knowledge and skills necessary to make lifelong career decisions. Career services offices accomplish these goals through career counseling and a range of programs and services designed to help students make the connection between the academic program and the workplace.

Career Counseling

Ideally, the career services office assists students throughout their stay at the institution, providing appropriate assistance at each stage of the student's career development. This process often begins with career counseling designed to help students develop the self-knowledge and awareness of options needed to select an academic major or a tentative career direction. Students are guided in thinking about their interests, values, competencies, and personal characteristics. Through conversation and exercises, students often discover previously unidentified interests.

Career counseling is frequently offered on a one-on-one basis, but at times this service is provided through group workshops, classes, or computerized guidance systems. When a student is asked to begin the exploration on a computer, an individual follow-up session with a counselor is generally encouraged. Career counseling often includes the use of standardized assessment instruments such as the Strong Interest Inventory, the Self-Directed Search, or other instruments designed to clarify career interests, values, personality, or self-identified skills.

As part of the career counseling process, students may be asked to research careers through either reading or interviews with professionals. Thus, a career resource library is an essential component of the career services office. These libraries generally include books on a wide range of career options as

well as job search manuals and information on employers. Some information formerly provided in book form, such as directories of employers, is increasingly being delivered through the Internet.

New Trends

In the last decades of the twentieth century, the career services field began to place an increasing emphasis on experiential learning, the mixed bag of ways that students can connect classroom learning with experience in the world around them. The forms of experiential learning that most commonly fall under the career services umbrella are internships and cooperative education. Cooperative education is a full-time, paid work experience that generally occurs during a regular semester. Students receive credit for the work and do not take classes during that time. Internships are usually served part-time, concurrent with classes or during the summer or other school breaks, and may or may not be paid. In some institutions, internships and cooperative education are part of the academic program and may be handled by faculty departments. However, career services offices are becoming increasingly involved at a variety of levels. Some simply provide resources such as internship directories or online databases of available experiences; others develop internships, place students at the sites, and monitor their progress.

Another trend in career services is for colleges to engage alumni as career resources for students, thereby teaching students the skill of networking. Many colleges make alumni career resource databases available to interested students. These databases include employment and contact information on alumni who have volunteered to serve as mentors or otherwise assist students with career-related questions. Some colleges also coordinate events designed to connect students with alumni. These can include panels of alumni who speak at student events, dinners at which students are seated with alumni in relevant fields, or field trips through which students spend time shadowing relevant alumni.

The Job Search

A traditional function that remains an essential part of the career services role is helping students to develop job search skills. Career services counselors critique students' résumés and letters, provide booklets on résumé and employment letter writing, and teach résumé writing, job interviewing skills, and job search strategies in group sessions. In practice job interviews, students are videotaped so they can see themselves in action. Some career services offices involve alumni or employers in critiquing résumés, conducting practice interviews, or leading workshops. Many also offer sessions on related topics such as networking, professional dress, or the transition to the work place. Etiquette dinners, designed to train students in the etiquette needed for job interviews and professional dinners, have become popular events on many campuses.

Nearly all career services offices also help students connect with potential employers for post-graduate positions. This is handled through a variety of methods. In on-campus interview programs, employers are invited to spend a day or more on campus, interviewing student candidates. Students who make a positive impression are later invited to the employment site for more extensive interviews. Some campuses give students access to a large number of employers in one day by coordinating career fairs, at which employers are stationed at tables to screen candidates and give information about their job openings. A trend that became popular in the 1990s and continues to be widely used is the consortium job fair, in which a number of colleges collaborate to coordinate a large event for the students at all participating schools.

Additional strategies designed to connect students with employers are résumé mailing services, in which career services offices send batches of applicable résumés to requesting employers, and candidate matching databases, which do the same thing electronically. Some colleges disseminate booklets of student résumés or offer credential services, in which student's résumés, letters of recommendation, and other application documents are mailed to employers at the student's request. For students who choose to go to graduate school rather than enter the workforce, career services offices often offer services such as graduate school fairs and databases to assist students in identifying programs that meet their criteria.

The Impact of Technology

The career services field has been strongly affected by the rise of the Internet in the 1990s. By the beginning of the twenty-first century, most career services offices had websites through which they offered career information and links to outside sites applicable to their student populations. Many also provided

students with the option of scheduling appointments or campus interviews via the World Wide Web. Web-based databases, including employer databases, candidate résumé databases, internship databases, and job listing databases, are becoming increasingly common. In many cases, career services offices are forming partnerships with outside vendors to offer these services.

Many of the services named above are made available to alumni as well as current students, sometimes for a fee and sometimes at no charge. Some offices also offer fee-based services to community members.

See also: Academic Advising in Higher Education; Adjustment to College; College Student Retention; Internships in Higher Education; Student Services, ***subentries on*** Colleges and Universities, Community Colleges.

BIBLIOGRAPHY

Boles, Richard N., and Figler, Howard. 1999. *The Career Counselor's Handbook.* Berkeley: Ten Speed Press.

Brown, Duane, and Brooks, Linda. 1996. *Career Choice and Development.* San Francisco: Jossey-Bass.

Hoeflin, Nancy M.; Anderson, Thad D.; and Timmins, Susan F., eds. 1998. *Choices and Challenges: Job Search Strategies for Liberal Arts Students.* Bloomington: Indiana University Custom Publishing and the Indiana University Career Development Center.

Kummerow, Jean, ed. 2000. *New Directions in Career Planning and the Workplace.* Palo Alto, CA: Davies-Black Publishing.

Luzzo, Darrell Anthony, ed. 2000. *Career-Counseling of College Students: An Empirical Guide to Strategies that Work.* Washington, DC: American Psychological Institute.

McDaniels, Carl, and Gysbers, Norman C. 1992. *Counseling for Career Development: Theories, Resources and Practice.* San Francisco: Jossey-Bass.

National Association of Colleges and Employers. 1998. *Professional Standards for College and University Career Services, May 1998.* Bethlehem, PA: National Association of Colleges and Employers.

Melissa K. Barnes

CARIBBEAN

See: Latin America and the Caribbean.

CARNEGIE CLASSIFICATION SYSTEM, THE

The Carnegie Classification (of Institutions of Higher Education) is a taxonomy of U.S. colleges and universities. The categories are based on information about the institutions, such as types of degrees conferred, academic disciplines offered, and specialization. The classification system shows the diversity of American colleges and universities. The purpose of the Carnegie Classification system is to assist in higher education research efforts; it is not intended to rank the quality of the institutions.

History and Updates

The Carnegie Classification system was developed in 1970 by the Carnegie Foundation for the Advancement of Teaching, an independent, nonprofit center for educational research and policy studies. The Classifications were first published in the Carnegie Commission on Higher Education's report, *New Students and New Places* (1971). Revisions to the classifications were published in 1976, 1987, 1994, and 2000. Reclassifications reflect changes in the U.S. institutions, such as new colleges, closings, and the developments in existing institutions. Data from the National Center for Educational Statistics (NCES) are used to update revised editions of the Carnegie Classification. An extensive revision planned for 2005 will offer a multiple-classification system that will allow for more types of comparisons among the variety of institutions.

Classification Categories in 2000

The Carnegie Classification system includes all U.S. colleges and universities that grant degrees and are accredited by the U.S. Secretary of Education. Based on the 2000 edition of the Carnegie Classification, there are ten categories of institutions. Each category is briefly described below, and examples of public, private not-for-profit, and private for-profit institutions in each category are shown in Table 1.

- Doctoral/Research Universities–Extensive: These institutions typically offer a wide variety of baccalaureate degrees and award fifty or more doctoral degrees per year across at least fifteen

TABLE 1

Carnegie Classification of institutions of higher education

Carnegie Classification	Total number/ percentage	Public institution example/number	Private not-for-profit example/number	Private for-profit example/number
Doctoral/Research Universities—Extensive	151; 3.8%	University of California, Berkeley; 102	Vanderbilt University; 49	None
Doctoral/Research Universities—Intesive	110; 2.8%	College of William and Mary; 64	Baylor University; 44	University of Sarasota; 2
Master's Colleges and Univerities I	496; 12.6%	Lincoln University; 249	Fairfield University; 246	Colorado Technical University; 1
Master's Colleges and Universities II	115; 2.9%	Mississippi University for Women; 23	Le Moyne College; 85	Huron University; 7
Baccalaureate Colleges—Liberal Arts	228; 5.8%	Coastal Carolina University; 26	Allegheny College; 202	None
Baccalaureate Colleges—General	321; 8.1%	Western Montana College; 50	Tri-State University; 226	DeVry Institute of Technology; 5
Baccalaureate/Associate's Colleges	57; 1.4%	Utah Valley State College; 15	Peace College; 31	Sullivan College; 11
Associate's Colleges	1,669; 42.3%	Sante Fe Community College; 1,025	Maryland College of Art and Design; 159	ITT Technical Institute; 485
Specialized Institutions	766; 19.4%	United States Naval Academy; 67	Hebrew Union Seminary; 593	University of Phoenix; 106
Tribal Colleges and Universities	28; 0.7%	Institute of American Indian and Alaska Native Culture and Arts Development; 22	Blackfeet Community College; 6	None
Total	**3,941; 100%**	**1,643; 41.7%**	**1,681; 42.6%**	**617; 15.7%**

SOURCE: Carnegie Foundation for the Advancement of Teaching website.

academic disciplines. Doctoral degrees include the Ph.D., Doctor of Education, Doctor of Juridical Science, and Doctor of Public Health, among others.

- Doctoral/Research Universities–Intensive: These institutions typically offer a wide variety of baccalaureate degrees and award at least ten doctoral degrees per year across at least three academic disciplines or at least twenty doctoral degrees per year overall.
- Master's Colleges and Universities I: These institutions typically offer a wide variety of baccalaureate degrees and award forty or more master's degrees per year across three or more academic disciplines.
- Master's Colleges and Universities II: These institutions typically offer a wide variety of baccalaureate degrees and award twenty or more master's degrees per year.
- Baccalaureate Colleges–Liberal Arts: These institutions award at least half of their baccalaureate degrees in liberal arts fields. Examples of liberal arts fields include English, foreign languages, biological sciences, mathematics, philosophy and religion, physical sciences, social sciences, and humanities.
- Baccalaureate Colleges–General: These institutions award less than half of their baccalaureate degrees in liberal arts fields.
- Baccalaureate/Associate's Colleges: In these institutions, the number of bachelor's degrees awarded represent at least ten percent but less than half of all undergraduate awards.
- Associate's Colleges: This is the largest category in the Carnegie Classification. In these institutions, the number of bachelor's degrees awarded represent less than ten percent of all undergraduate awards.

- Specialized Institutions: These institutions typically award degrees in a particular field. Examples include medical and law schools; religious institutions, such as seminaries and rabbinical schools; schools of business, engineering, art, and design; and military institutes.
- Tribal Colleges and Universities: These institutions are members of the American Indian Higher Education Consortium and are typically tribally controlled and located on reservations.

1994 Classifications

The 1994 edition of the Carnegie Classification comprised the following eleven categories, outlined below for comparison with the revisions that were made in 2000:

- Research Universities I typically offered a full range of baccalaureate programs, awarded fifty or more doctoral degrees, and received annually $40 million or more in federal support.
- Research Universities II also typically offered a full range of baccalaureate programs and awarded fifty or more doctorates, but they received between $15 million and $40 million per year in federal support.
- Doctoral Universities I offered a full range of baccalaureate programs and awarded at least forty doctoral degrees annually in five or more disciplines.
- Doctoral Universities II offered a full range of baccalaureate programs and awarded at least ten doctoral degrees in three or more disciplines or twenty or more doctorates per year total.
- Master's (Comprehensive) Colleges and Universities I offered a full range of baccalaureate programs and awarded forty or more master's degrees annually in three or more disciplines.
- Master's (Comprehensive) Colleges and Universities II also typically offered a full range of baccalaureate programs, but they awarded twenty or more master's degrees per year in one or more disciplines.
- Baccalaureate (Liberal Arts) Colleges I were primarily undergraduate colleges with a major emphasis on baccalaureate programs. They awarded forty percent or more of their degrees in liberal arts fields, and their admissions policies were selective.
- Baccalaureate (Liberal Arts) Colleges II were also primarily undergraduate colleges with a major emphasis on baccalaureate programs. They awarded less than forty percent of their degrees in liberal arts fields, and their admissions policies were less selective.
- Associate of Arts Colleges offered associate of arts certificate or degree programs.
- Specialized Institutions offered at least fifty percent of degrees in a particular field. Examples include medical and law schools; faith-related institutions, such as seminaries and rabbinical schools; schools of business, engineering, art, and design; and military institutes.
- Tribal Colleges and Universities were members of the American Indian Higher Education Consortium and were typically tribally controlled and located on reservations.

The Carnegie Foundation for the Advancement of Teaching

The Carnegie Foundation, the third oldest foundation in the United States, was founded by Andrew Carnegie in 1905 and chartered by an act of Congress the following year. Governed by an independent, national board of trustees, the Carnegie Foundation uses its endowment to support educational research and publications. In addition to establishing the Carnegie Classification of Institutions of Higher Education, the foundation developed the largest pension system in the United States (TIAA–CREF), founded the Educational Testing Service, developed the Graduate Record Exam, and published numerous influential studies on the American higher education system. The Carnegie Foundation is located in Menlo Park, California.

See also: Higher Education in the United States, ***subentry on*** System.

BIBLIOGRAPHY

Carnegie Commission on Higher Education. 1971. *New Students and New Places.* New York: McGraw-Hill.

INTERNET RESOURCE

Carnegie Foundation for the Advancement of Teaching. 2001. "Carnegie Classification of Institutions of Higher Education." <www.carnegiefoundation.org>.

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CARNEGIE UNITS

Adopted in the early 1900s to both standardize and ensure the quality of high school education, the Carnegie unit is viewed almost a century later by critics as an impediment to flexibility. Yet, for all of its limitations, the Carnegie unit remains the putative guarantor that students have invested in each of their courses an amount of time that warrants the credit that so many colleges and employers presume represents learning.

In fact, the search for the answer to the elusive question of how much learning results from each course gave birth to the Carnegie unit, and keeps the approach alive as a surrogate for knowledge gained. In another era, college admissions officers—especially at selective colleges—concerned themselves mostly with applicants from private preparatory schools, believing that they needed to become familiar with the quality of only those few schools. Even at a state institution such as the University of Michigan, it was the responsibility of the faculty to oversee academic standards at the secondary level. Admissions officials and faculty everywhere, however, could not keep track of the standards at new public high schools that proliferated across the country during the first decades of the 1900s.

Thus, the Carnegie Foundation for the Advancement of Teaching encouraged the adoption of what came to be known as the Carnegie unit, which equates seat-time with learning. Each unit represented about 130 instructional hours. The Carnegie Foundation defined a unit as a course that met for a period each school day for about 50 to 55 minutes. The Carnegie unit continues to influence much that is crucial to teaching and learning in high schools—the length of the class period, the school day and the school year, as well as the time expended to receive a diploma. The unit affects the very way that knowledge is organized for instructional purposes, discouraging interdisciplinary teaching because of the difficult question of deciding how many units to attribute to each discipline. Those who would organize and convey knowledge differently inveigh against the "tyranny" of the Carnegie unit, asserting that seat-time is not a proxy for learning and that secondary schools must be flexible to engage students and to heighten learning. The following developments add to the challenge:

- Block scheduling
- Out-of-classroom field experiences
- Distance learning and independent study
- Portfolios and other performance-based assessments

Under block scheduling, a course meets for a specified number of hours; but, this number may vary from that of traditional courses because of the way the time is arranged. Out-of-class experiences involve time configurations that only remotely relate to seat-time. Distance learning made possible by technology, in combination with independent study, tends to free students to spend as little or as much time as they require to cover the material. Performance-based assessment may be used in conjunction with the Carnegie unit, or it may argue for an appraisal of learning without regard for seat-time. Aspects of school reform underscore the idea that secondary students might benefit from less reliance on Carnegie units. The Coalition of Essential Schools, for instance, advocated a more limited but more intense curriculum under the motto of "Less Is More." Furthermore, the move to integrate subject matter, especially at small alternative high schools, made it less clear how to satisfy the unit requirement. But no widely accepted alternative guarantor of quality emerged by the beginning of the twenty-first century.

In fact, demands for accountability helped preserve the Carnegie unit. Taxpayers wanted assurances that the $350 billion a year they bestowed on public schools was not squandered. Colleges sought methods to compare applicants and to gauge the extent of their preparation. David Tyack and Larry Cuban cited the "interlocking reasons" (p. 107) that defenders of the status quo gave for regarding the Carnegie unit as part of a system that could not withstand tampering. This system—the time devoted to each class and each course, the departmental organization, the lecture method of teaching—was likened by its guardians to the building blocks that support an entire structure. Remove one, they said, and the stability of the others, and of the high school itself, was imperiled. Colleges and universities, prodded by the Carnegie Foundation, forced the unit requirement on secondary schools. It may be that altering or altogether eliminating the Carnegie unit will ultimately depend on whether educators can agree on a more meaningful symbol for knowledge gained in secondary education.

See also: Curriculum, School; Nongovernmental Organizations and Foundations; Second-

ary Education, ***subentry on*** History of; School Reform.

BIBLIOGRAPHY

Lagemann, Ellen Condliffe. 2000. *An Elusive Science: The Troubling History of Education Research.* Chicago: University of Chicago Press.

Maeroff, Gene I. 1993. "The Assault on the Carnegie Unit." *Education Week* October 13, p. 36.

Tyack, David, and Cuban, Larry. 1995. *Tinkering toward Utopia: A Century of Public School Reform.* Cambridge, MA: Harvard University Press.

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CATEGORIZATION AND CONCEPT LEARNING

Education in every form entails the acquisition and modification of conventional categories and labels, as well as processes for inferring category membership. Consider these statements: "Fractions are numbers between two integers"; "Plants get energy through photosynthesis"; and "A noun is a person, place, or thing." The first claims a formal relation between well-defined number concepts. The second explains a biological concept by analogy. The third specifies (erroneously) a linguistic category. Teachers frequently make statements like these to elementary and secondary students. How, in fact, are the named concepts learned? How do concepts change with age, experience, and particularly education?

Form and Format of Conceptual Knowledge

A common misconception is that concepts are well defined, like dictionary entries. Though hundreds of concepts, particularly scientific ones, are well defined within a community of experts, most are "fuzzy" and metaphorical. Even patently well-defined categories like "odd number" are treated as if some examples are better than others.

Adults' concepts fall into a wide variety of abstract representations, such as taxonomic hierarchies, kinship systems, and legal definitions. Some representations mirror the structure of the physical environment, whereas others are rather arbitrary products of their cultural and linguistic environments. Most are a synthesis (e.g., biological categories reflect real patterns among organisms, yet are shaped by culturally specified theories). Children's concepts also reveal abstract representations, but these are generally less elaborate and less well-defined than those of adults.

Conceptual knowledge, as symbolic as it seems, is encoded as patterns of electrochemical activation within powerful neural networks in the neocortex. These concept patterns are derived from repeated experience. Experience trains massively interconnected systems of neural units (analogous to groups of neurons) by changing connection strengths. Over time, associated input patterns (e.g., sights and sounds of a cat) will activate a characteristic response pattern. This response is a concept (cat). Critical features of these concept patterns are graded activation (i.e., some inputs activate the response more strongly than others) and learning algorithms that specify how connection strengths change with experience. This pre-symbolic view of conceptual representation, though unintuitive, is dominant among cognitive scientists, and work in the mid-1980s through 1990s has answered some early criticisms. Still, questions remain about how conceptual thinking emerges from in neural networks. For example, it is not clear how current theoretical models can capture intricacies of conceptual knowledge (e.g., nonliteral usage of concepts, as in the ironic use of *award* in the "Golden Turkey Awards" for the year's worst movies).

A comprehensive proposal by Lawrence W. Barsalou in 1999 holds that concepts are inherently perceptual and experiential. So-called abstract conceptual knowledge is in fact the productive activation of remembered aspects of perceptual and internal experiences. As experiences are retained in memory, the associations among them permit new mental simulations that support a variety of functions. These functions include conceptual redescription, inference, imagination, and productive combination of concepts. These functions are traditionally ascribed to symbolic, completely abstract concepts, but Barsalou argues that they can more simply be attributed to a powerful system for manipulating stored perceptual knowledge. The power of the system rests on selective simulation: when the concept *cat* is activated, one does not recall every cat experience, but the experiences evoked by current contextual demands and recently activated information. Thus, the word *skunk* might normally activate

the property *smelly,* but after watching a documentary showing footage of skunks foraging at night, the property *nocturnal* might be activated as well.

Educators should judiciously use definitions to teach new concepts. Students will not typically use definitions to judge category membership. Exposing students to multiple examples that highlight the distinctive properties of the category of interest, or comparing contrastive categories, is more effective. A common misunderstanding of concept learning can be seen in the traditional western approach to mathematics education that emphasizes abstract or "content-free" knowledge. There is no evidence of such decontextualized knowledge, and it should be assumed that mathematical concepts are derived from organized experience with concepts of quantity (e.g., cardinality, equivalence) and operations on quantities (e.g., concatenation; transformation), in a variety of familiar materials. Although it is trivially apparent that diverse, rich experiences eventually increase knowledge of mathematical and scientific concepts, the general, powerful principles for optimizing the presentation of multiple examples in classrooms, so that students' conceptual knowledge is effectively and efficiently enriched, have not yet been derived.

Theories of Category Learning

How do experiences give rise to new categories? Presumably individuals are exposed to various members, and sometimes told about category membership. Parents use various strategies for teaching children new categories, category labels, and associated properties. But how does experience generate new categories?

In the 1994 model of Robert M. Nosofsky and his colleagues, people distinguish contrasting categories by gradually modifying the degree of attention allocated to various features of possible category members, until the simplest and most diagnostic decision rule (i.e., set of attention "weights" focusing on the fewest possible features) is attained. Atypical category members (e.g., ostriches, which differ from typical North American birds in many regards) are represented separately, as exceptions. Current controversy focuses on the information retained from multiple experiences, exact algorithms for describing changes in represented categories with experience, and the uniformity of category learning across domains. For example, there is evidence that people treat atypical examples differently across the domains of natural, object, and social categories.

How do children learn categories? Little research addresses changes in category learning processes during and after childhood. Research on children's categories often confounds their conceptual knowledge with their comprehension of category labels. A current debate concerns what categories children acquire first. Though prelinguistic infants differentiate related categories (e.g., *cats* vs. *lions*), their knowledge might not transcend surface similarity. Knowledge of the dynamic or hidden properties of categories becomes evident after the first six months, but two-year-olds still sometimes fail to differentiate related categories (e.g., calling any water fowl *duckie*) or categorize different-looking entities. In such cases parents can shape children's naming. Children, however, select and organize social input about categories and labels. For example, parents predominantly use basic-level labels when talking to children. Basic-level categories (e.g., *car, bird*) capture a useful intermediate level of generality, compared to very broad (e.g., *animal*) or narrow (e.g., *parakeet*) categories. Compared to parents, however, preschool children use a much higher proportion of basic level labels, suggesting that children's inductive dispositions (or limitations) shape their acquisition and use of category labels.

Adults can help children focus on similarities of, and variability between, category members. Both social input and selection and tailoring of available examples can facilitate category learning. An unresolved question is how analog (i.e., rich, realistic), versus digital (i.e., reduced, electronic), examples can facilitate children's concept learning. This is a practical question, given the growing availability of computer technology for young children. A problem is that children sometimes mistake which features define a category (e.g., rejecting a barren island but accepting a tropical peninsula as examples of island). Predicting children's misconceptions about categories is therefore crucial for teachers. Verbal instruction about critical features can be ineffective or misleading, so teachers must orchestrate creative experiences and instruction to advance children's grasp of conventional categories.

Conceptual Change in Children

Children, adolescents, and adults enter classrooms with naive preconceptions about the world. Shifting these preconceptions can be onerous. In 1985 Susan

Carey documented children's changing biological concepts and related inferences about biological properties. For example, a child who conceptualizes people as prototypes of animals will extend traits of humans (e.g., respiring, sleeping) to similar creatures (e.g., gorillas), but not dissimilar ones (e.g., worms). In contrast, adults often generalize biological properties in a less anthropocentric manner.

The process of conceptual change is mysterious, and frustrates educators' desires to facilitate it. Researchers have suggested many procedures to promote conceptual change, but naive concepts can be extraordinarily intractable. For example, even after formal physics instruction, older students make pervasive errors about concepts like force. One approach to teaching stipulates having students articulate their concepts, setting up a demonstration that would yield different results under the naive and the conventional belief system, having students predict an outcome, and then conducting the demonstration. Apparently articulating and confronting the discrepancy between own and others' beliefs, and seeing relevant evidence, can provide a powerful springboard for conceptual change. Note, however, that this approach is effective with older students revising well-defined concepts in a mature science. Its effectiveness for young children, whose capacity to recognize disconfirming evidence is limited, has not been established.

The Functions of Categorization in Children's Thinking

The content of children's categories changes with age, but what of the uses of categorization and concepts? Concepts constrain perception, language, social interaction, and problem solving—every aspect of cognition. Categories permit economic thinking, inferring properties of novel instances, organizing memories, making analogies, and solving problems with flexibility. It is not known how education, informal learning, and maturation separately alter these functions. In short, there is a lack of a developmental theory of the ecology of categorization that takes into account development and schooling. Outlining this theory is a major task for developmental and educational psychology in the twenty-first century.

See also: Language Acquisition; Learning, ***subentry on*** Conceptual Change.

BIBLIOGRAPHY

Barsalou, Lawrence W. 1999. "Perceptual Symbol Systems." *Behavioral and Brain Sciences* 22:577–660.

Bransford, John D.; Franks, Jeffery J.; Vye, Nancy. J.; and Sherwood, Robert D. 1989. "New Approaches to Instruction: Because Wisdom Can't Be Told." In *Similarity and Analogical Reasoning,* ed. Stella Vosnaidou and Andrew Ortony. Cambridge, Eng.: Cambridge University Press.

Carey, Susan. 1985. *Conceptual Change in Childhood.* Cambridge, MA: MIT Press.

Chi, Micheline T. H.; Hutchinson, Jean E.; and Robin, Anne F. 1989. "How Inferences about Novel Domain-Related Concepts Can Be Constrained by Structured Knowledge." *Merrill-Palmer Quarterly* 35:27–62.

Deák, Gedeon O. 2000. "Chasing the Fox of Word Learning: Why 'Constraints' Fail to Capture It." *Developmental Review* 20:29–80.

Gelman, Susan A., et al. 1998. *Beyond Labeling: The Role of Maternal Input in the Acquisition of Richly Structured Categories.* Monographs of the Society for Research in Child Development 63(1). Chicago: University of Chicago Press.

Hunt, Earl, and Minstrell, Jim. 1994. "A Cognitive Approach to the Teaching of Physics." In *Classroom Lessons: Integrating Cognitive Theory and Classroom Practices,* ed. Kate McGilly. Cambridge, MA: MIT Press.

Keil, Frank C., and Batterman, Nancy. 1984. "A Characteristic-to-Defining Shift in the Development of Word Meaning." *Journal of Verbal Learning and Verbal Behavior* 23:221–236.

Lakoff, George. 1987. *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind.* Chicago: University of Chicago Press.

Livingston, Kenneth R., and Andrews, Janet K. 1995. "On the Interaction of Prior Knowledge and Stimulus Structure in Category Learning." *Quarterly Journal of Experimental Psychology: Human Experimental Psychology* 48:208–236.

Mandler, Jean M. 2000. "Perceptual and Conceptual Processes in Infancy." *Journal of Cognition and Development* 1:3–36.

Medin, Douglas L.; Lynch, Elizabeth B.; and Solomon, Karen O. 2000. "Are There Kinds of Concepts?" *Annual Review of Psychology* 51:121–147.

Mervis, Carolyn B. 1987. "Child-Basic Object Categories and Early Lexical Development." In *Concepts and Conceptual Development,* ed. Ulric Neisser. Cambridge, MA: Cambridge University Press.

Murphy, George L., and Medin, Douglas L. 1985. "The Role of Theories in Conceptual Coherence." *Psychological Review* 92:289–316.

Nosofsky, Robert M.; Palmeri, Thomas J.; and McKinley, Stephen C. 1994. "Rule-Plus-Exception Model of Classification Learning." *Psychological Review* 101:53–79.

Rosch, Eleanor. 1978. "Principles of Categorization." In *Cognition and Categorization,* ed. Eleanor Rosch and Barbara Lloyd. Hillsdale, NJ: Erlbaum.

Rumelhart, David E., and McClelland, James L. 1989. *Parallel Distributed Processing: Explorations in the Microstructure of Cognition,* Vol. 1. Cambridge, MA: MIT Press.

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CATHOLIC SCHOOLS

In 1783 Philadelphia Catholics established the first Catholic parish school in the United States, and over the next two centuries, Catholic parochial schools would educate tens of millions of American citizens. By the middle of the 1960s, when the Catholic parochial school movement had reached its high point, there were more than 5.7 million children in parish elementary schools—12 percent of all of the children enrolled in schools in the United States at that time. The challenges of providing parish-based education have changed from one generation to the next, but Catholics schools have survived in spite of substantial obstacles.

Foundations

During the sixteenth, seventeenth, and eighteen centuries, colonial Catholics struggled merely to survive in that vast territory that would become the United States of America. In fact, the progress of the church in all of the colonies of the New World (Spanish, French, and English) was due largely to the personal sacrifices and skills of a cadre of great priests. Their willingness to give their all, including their lives, left a Catholic imprint on virtually every region of the country.

That is not to say that Catholic schools emerged because of these missionary efforts. It would take many generations for American Catholics to feel secure enough to establish their own schools. In fact, the very survival of Catholicism as a religion in America was in doubt until the late eighteenth century. Those Catholic schools that did emerge in the early decades of the American Republic were the direct result of a collaboration of interested parents, determined pastors, and compassionate sister teachers. Of special note was the persistence of Elizabeth Seton, who recruited and trained the sister teachers who were the backbone of the parish school system for nearly 125 years.

Yet the most important ingredient in the eventual spread of Catholic education in the nineteenth century was parental support. Beginning in the early 1800s, many American Catholic parents were willing to build and support parish schools. These parents believed that the future of Catholicism in the new nation was tied to educating the next generation in the ways of the faith.

Rapid social change and population growth, accompanied by misunderstanding, hostility, and resistance, were important ingredients in the process of Catholic educational development in the years before the Civil War. Civic leaders argued in favor of common schools that would transform a diverse population of children into a homogeneous, deferential, and very American citizenry. Catholics resisted these common schools because of their distinct Protestant overtone, and they built their own schools.

The tensions between public and Catholic schoolmen forced the two sides to modify the content of their curricula. After a decade of violence in the 1840s, both sides sought other ways of winning the hearts and minds of the Catholic population. Public schoolmen took measures to make their schools less sectarian. Catholic schoolmen countered with measures to make their schools more secular. Both sides were competing for the attention and loyalty of Catholic parents and their children. It was a competition that would continue well into the twentieth century.

Educational Choices

In the later decades of the nineteenth century, Catholics shifted their attention to controlling the growth and development of Catholic education from within

the denomination. Catholic schoolmen realized that it was not enough to promulgate decrees requiring Catholics to send their children to parish schools. Catholic parents faced a variety of educational choices and their responses were determined largely by their perceptions of the values and dangers of common schooling. A significant percentage of Catholic parents—perhaps a majority—had relatively few qualms about public education. In fact, these parents saw the public school as the best means of insuring the future prosperity of their children in American society.

A second group of parents could not quite accept the idea of a curriculum totally devoid of religious instruction, but they were not willing to abandon the goals of public education. Their choice was to build formal working relationships with local school boards that provided for publicly supported secular institutions taught by Catholic teachers in parish-owned classrooms; religion was an after-school activity.

A third group of parents spurned formal relationships with public school boards, but nevertheless adapted many of the fundamental elements of the public school curriculum for use in parish classrooms. The result was the prototype for the Catholic parochial school that came to dominate the educational landscape in the twentieth century.

A fourth group of parents, most of whom were immigrants from Europe, not only spurned the public schools, but also established parish schools that emphasized native culture, language, and religion. The ethnic Catholic school was a powerful force within the Catholic Church well into the twentieth century. The movement ended abruptly, however, with the animosity toward all things foreign during World War I.

The style and substance of Catholic parochial education varied from region to region, diocese to diocese, and even from parish to parish across the United States during the last half of the nineteenth century and even into the first decade of the twentieth century. Bishops and pastors could not force Catholic parents to send their children to parish schools. State legislatures could not mandate public control over parochial institutions. Both sides learned that decisions on the education of Catholic children would be a family affair.

A Search for Order

At the turn of the twentieth century, American Catholic education remained a chaotic patchwork of school experiments held together by a common belief in the value of daily Catholic moral instruction as part of the educational process. Out of this chaos came a search for order during the years from 1900 to 1950. This search was evident in the movement within individual dioceses to establish school boards and appoint superintendents to provide greater uniformity in Catholic schooling from one parish to the next. The search was also evident in the establishment of the Catholic Educational Association in 1903 and the National Catholic Welfare Conference in 1918, two organizations that brought order to Catholic education on the national level.

The Catholic response to teacher preparation was a case study of the pressures on parochial education in the twentieth century. If parochial education was to survive, it had to compete with public education on its own terms. To do so meant that Catholic leaders had to better prepare women religious and other teachers for the classroom. Nevertheless, women religious never received all the teacher training they needed. At its core, Catholic teacher preparation was a combination of on-the-job training and summer school instruction.

The leadership role played by women religious in parochial education should not be underestimated. In fact, it would not be difficult to make the case that sister-teachers were the single most important element in the Catholic educational establishment both in the nineteenth and the twentieth centuries. Training was only a small part of their commitment to Catholic children.

A Generation of Crisis

The years from 1950 to 1990 were a generation of crisis in Catholic education. First, there was the crisis of growth in the 1950s when demand for parochial education (due to the increase in the school-age population during the Baby Boom) far outstripped the available space. Then came the crisis of confidence during the social upheaval of the 1960s when Catholic parents asked themselves if parochial schools were necessary. Self-doubt in the 1960s was followed by the crisis of decline in the 1970s when devoted pastors and parents asked themselves if Catholic schools would survive. Although the answer by the end of the decade was an unequivocal

yes, it was unclear who would pay the high cost of sustaining these schools. In fact, the economic burden of parochial education would be the predominant issue of parochial schooling in the 1980s.

The 1980s were years of uncertainty. Once a haven of white immigrant children who were making the transition from Europe to America, the Catholic schools of the 1980s had become visible symbols of the commitment of some parents—both Catholic and non-Catholic—to the education of their children. To be sure, many Catholic parishes had closed their schools in the previous three decades and other parishes were unwilling to open new schools. But just as important were the many parishes in the inner cities as well as in the affluent suburbs that made great sacrifices to sustain their schools.

An Uncertain Future

The future of American Catholic parochial education is uncertain. In the 1960s, there were more than 5.7 million children enrolled in Catholic elementary schools, but by 2001 the enrollment had slipped to less than 2.6 million, a plunge of 54 percent. Even though the rate of decline had abated, it is not likely that Catholic education will ever see the strength of numbers it had at the middle of the twentieth century.

Why did Catholic parents abandon their schools over the last thirty years of the twentieth century? The answer is complex, intermingled with changing social values, changes in family structure, changes in the forms and content of public education, and the rising cost of private education relative to other living expenses. All these factors contributed to the decline of parochial education during the years from 1970 to 2000.

The beginning of the decline of Catholic parochial education can be traced to the drastic drop in religious vocations in the late 1960s. For more than a century, orders of priests and nuns staffed Catholic classrooms at minimal cost. However, in the years after the end of the Second Vatican Council in 1965, tens of thousands of these men and women abandoned their religious vows, and many others shifted to different ministries, forcing parish pastors and principals to hire lay teachers and pay them a living wage. Many school administrators found this task to be economically unfeasible and closed their schools.

A second factor was the changing structure of the American family. Where once the typical American Catholic family consisted of two parents and a gaggle of kids, the new American Catholic family was often a single parent with one or two children. Even in two-parent households, both parents worked and were in need of day-care facilities and after-school programs. Catholic families no longer had the time or energy to contribute to the operation and maintenance of a private parish school.

Related to the change in the structure of the typical Catholic family over the past thirty years has been a correlate change in American values. In such a consumer-oriented culture, Catholic parents found that they have no money left to pay parochial school tuition, let alone the resources needed to build a new school.

Another factor was the changing nature of public education. As late as the 1950s, public schools taught a form of nonsectarian Protestantism as part of the curriculum. Catholics in those areas and even in the big cities did not always feel welcome. But a 1961 decision by the Supreme Court stripped all public schools of any references to religion. Students of all faiths were treated equally.

Catholic parents were also attracted to public schools by the quality of the facilities, teachers, and courses. The principal concern of many parents—Catholic as well as non-Catholic—was the future careers and economic security of their children. Unlike their parents and grandparents, Catholic parents in the late twentieth century did not tend to value the spiritual development of their children as highly as their career development.

Catholic Schools and the Courts

There are also a sizable number of parents and educators—both Catholic and non-Catholic—who believe that they are being deprived of the right to fairly choose between public and private schools. At the turn of the twenty-first century, these ''school choice'' advocates have petitioned states legislatures and even the U.S. Congress to provide tuition tax credits and vouchers that would allow parents to make a fair choice between public and private schools. Legislatures in Wisconsin, Arizona, Ohio, and Vermont did establish school voucher programs, but these programs quickly became entangled in court litigation. Other school aid programs have been proposed in Michigan, California, Texas, and Florida.

Not surprisingly, Catholic school advocates have been active supporters of the school choice and

tax voucher movements. If found to be constitutional, such aid could be an important source of financial support for many parents who struggle to pay thousands of dollars in parish school tuition each year. In 2000 the U.S. Supreme Court ruled in favor of providing tax-supported computers and remedial instruction in Catholic schools and in June 2002 upheld the use of public money for religious school tuition. Whatever the decision, however, Catholic school advocates do not believe that the voucher issue will affect the future of Catholic education.

Catholic Schools as Models

Many of the parish schools that have survived are worthy of emulation. In a 1993 study, *Catholic Schools and the Common Good,* three social scientists outlined the successful hallmarks of Catholic education, qualities that have been adapted by many public schools.

Foremost among the qualities of parish-based education is decentralization. For the most part, parish schools are administered at the local level. Funding for the schools comes from the community and teachers are hired by principals without interference from school superintendents or other educational bureaucrats. Parents have a greater involvement and effectiveness in the education process because they are working single institutions in their own neighborhoods rather than a centralized bureaucracy. A second quality related to the first is the fact that parents, students, and faculty share a broad set of beliefs that give each school a moral purpose. Shared values are possible if parents, students, and faculty care about education.

Another hallmark of parochial schools worthy of emulation is size. The small size of most parish schools promotes interaction between students, parents, and staff. Because teachers serve in many different roles during the school day (disciplinarians, counselors, and friends as well as specialists in one or more academic disciplines) they become mentors and role models. The small size of most parish schools insures that parents and teachers know one another and their children well.

Finally, parish schools place a special emphasis on academics. Small size and limited resources necessarily requires administrators to concentrate on basics. The result is a student body well grounded in the mathematical and literary skills so necessary for success at future educational levels. Large schools with cafeteria-style curricula may very well meet short-term demands for relevant instruction, but there is little evidence that courses in industrial management and family living are as valuable as literacy and mathematical skills in a constantly changing society.

The parents of the children who are educated in these schools will determine the future of Catholic parochial education in the United States. More than two centuries ago, the parents and pastor of St. Mary's Parish in Philadelphia established the first American parochial school. As long as there are parents and pastors interested in parochial education, these schools will survive. Even though American Catholic parochial education is unlikely to attain the position of influence it had in the mid-twentieth century, parish schools will remain important education laboratories for some time to come.

See also: Elementary Education, ***subentry on*** History of; Jewish Education, United States; National Catholic Educational Association; Private Schooling; Protestant School Systems; Secondary Education, ***subentry on*** History of.

BIBLIOGRAPHY

Buetow, Harold A. 1988. *The Catholic School: Its Roots, Identity, and Future.* New York: Crossroad.

Bryk, Anthony S.; Lee, Valerie E.; and Holland, Peter B. 1993. *Catholic Schools and the Common Good.* Cambridge, MA: Harvard University Press.

Dolan, Jay P. 1985. *The American Catholic Experience: From Colonial Times to the Present.* Garden City, NY: Doubleday.

Dolan, Jay P., et al. 1989. *Transforming Parish Ministry: The Changing Roles of Catholic Clergy, Laity, and Women Religious.* New York: Crossroad.

Perko, Michael F., ed. 1988. *Enlightening the Next Generation: Catholics and their Schools, 1830–1980.* New York: Garland.

Walch, Timothy. 1996. *Parish School: American Catholic Parochial Education from Colonial Times to the Present.* New York: Crossroad.

Youniss, James; Convey, John; and McLellan, Jeffrey, eds. 2000. *The Catholic Character of Catholic Schools.* Notre Dame, IN: University of Notre Dame Press.

Youniss, James, and Convey, John, eds. 2000. *Catholic Schools at the Crossroads.* New York: Teachers College Press.

Timothy Walch

CENTERS FOR TEACHING IMPROVEMENT IN COLLEGES AND UNIVERSITIES

Although teaching has been at the core of faculty life from the beginning of the modern university, emphasis on teaching improvement is a more recent phenomenon. Centers and programs that support excellence in college and university teaching have grown substantially since the mid-twentieth century, and offer a broad range of services and resources to various constituencies.

Terms

Teaching-improvement support is typically offered either through programs (run by individual faculty members or faculty committees) or centers (centrally located and funded units), and is categorized in a variety of ways—most typically as *faculty development* (or, in the case of graduate students, *teaching assistant development*). While some resist this term and its implications that instructors need to "be developed" (Gaff, p. 175), it is nonetheless commonly used to refer to a large range of activities focusing on the professional work of faculty and graduate students as teachers (and, to a lesser extent, as researchers).

Other terms often associated with teaching-improvement centers are *educational* or *instructional development,* which emphasizes the design of a course, the curriculum, and student learning activities. Organizational development, which focuses on the organizational structure of an institution and its subcomponents, is another form of support sometimes blended into teaching centers or programs.

History

Only in the late 1950s and early 1960s did significant cracks appear in the foundational assumption in higher education that content competence equated with teaching competence. According to Wilbert J. McKeachie, a pioneering researcher on college teaching, the first centers for the improvement of college teaching developed in the early 1960s at the University of Michigan and Michigan State University. Behaviorist psychology shaped the mission of these centers. Faculty developed instructional materials that reinforced student progress through a series of carefully designed learning steps. Early centers tended to focus on teaching in disciplines that responded best to such programmed learning, including foreign languages, statistics, and anatomy.

The social revolutions of the 1960s profoundly reshaped American colleges and universities. Students demanded, and often received, a larger voice in campus life. One manifestation of this change came with students evaluating classroom teaching, a rarity before the 1960s and the norm by the late 1970s. Despite the many flaws in these evaluations, university administrators soon began making personnel decisions in response, in part, to student commentary about teaching. Some faculty called for new support to improve teaching, both to enhance their own practice and to meet higher performance standards being advocated by students and administrators. In the late 1960s, only forty to fifty faculty development programs existed at colleges and universities nationwide; by the middle of the 1970s that number had exploded to more than 1,000. Private funds (from groups including the Danforth Foundation and the Lilly Endowment) and federal grants (from sources such as the Fund for the Improvement of Postsecondary Education) helped establish many of these new programs. Although this seed money allowed teaching centers to blossom quickly across the nation, over the next decade many programs struggled to survive when their initial grants expired.

These new teaching programs varied widely in their mission and structure. Typically a teaching-improvement program developed to meet an individual campus's needs, rather than in response to a larger national trend. Depending on the resources and interest involved, colleges developed formal or informal teaching-improvement programs; only the most well-funded universities tended to establish formal teaching centers that coordinated and enhanced improvement programs campus-wide. Centers at research universities often focused initially on training graduate students to teach. At comprehensive universities and community colleges, less well-funded programs usually concentrated on improving faculty teaching techniques.

As the number of teaching programs and centers expanded, college teachers and faculty develop-

ers created professional organizations to share best practices. The American Association for Higher Education (AAHE) spun off the National Education Association (NEA) in 1969. In 1976 a group of faculty developers founded the Professional and Organizational Development Network for Higher Education (POD), and in 1978 private and public grants helped establish the National Institute for Staff and Organizational Development (NISOD). Publications, conferences, and other activities by these three groups helped advance both the practice of faculty development and the visibility of teaching in higher education.

The assessment movement that took center stage in the 1980s reshaped both perceptions of teaching and the work of teaching-improvement programs. Advocates of assessment, from inside and outside the academy, asked pointedly, ''Are students learning anything in college?'' (B. Wright, pp. 299–300). As attention shifted from teaching to learning, faculty development work also changed its focus. Improving teaching techniques remained an important component of most programs, but more and more developers encouraged faculty to think about student learning. ''Classroom assessment techniques'' (CATs), pioneered by Thomas A. Angelo and K. Patricia Cross, emerged as a new and powerful way for faculty to regularly and informally monitor learning. Besides promoting the use of CATs, many teaching programs also emphasized topics such as cognitive processes, motivational strategies, and learning styles.

In the early 1990s Ernest L. Boyer of the Carnegie Foundation for the Advancement of Teaching, along with allies from the AAHE and other groups, proposed a significant reconsideration of faculty roles and responsibilities, including teaching. These proposals responded both to the assessment movement and demands for more public accountability in higher education, and to advances in learning sciences. A core component of Boyer's vision involved ''the scholarship of teaching.'' Boyer argued that, like other forms of scholarship, to be scholarly the act of teaching must be public, open to critical evaluation by peers, and usable by others in the discipline.

The intellectual energy created by Boyer's proposal coincided with other trends to produce another period of growth and expansion for teaching-improvement programs. By 1994 roughly one-third of colleges and universities had a formal center for teaching improvement, and another third was considering the creation of a center. These centers existed at many (61%) research universities, and at some (41%) doctorate-granting institutions; such centers were relatively rare at liberal arts colleges and community colleges, although nearly all institutions had some sort of faculty development program, often focusing on teaching and learning.

Teaching centers populated many research universities by the 1990s due, in part, to increased emphasis on graduate student teaching assistant training. In 1986 the Ohio State University hosted the first national conference on teaching assistant development; seven years later a consortium of universities and private foundations launched Preparing Future Faculty, a major national initiative to train graduate students to be effective teachers and scholars. Preparing Future Faculty programs, and variations on that model, spread quickly, becoming a significant component of teaching center work at many research universities by the end of the decade.

Teaching centers also became assets to colleges and universities that struggled to deal with technological revolutions, changing student demographics, and increased competition in higher education. As computers and networked technology became ubiquitous, new ways of teaching and learning enticed many colleges and universities to explore distance and asynchronous education. These changes challenged teaching centers to help faculty and institutions focus on learning rather than on gadgets and gimmicks. Changing student demographics also confronted college teachers, leading to increased work for teaching centers to address the needs of adult learners in more culturally diverse classrooms. The quality of teaching and learning also became an issue as the growth of for-profit higher education and the proliferation of distance-learning programs gave students new opportunities to choose where, when, and how to pursue their education.

Resources and Services

Although the breadth of content and scope of teaching-improvement programs and centers can vary substantially from institution to institution, most offer some combination of the following services.

Consultation services. These services enable individual faculty and graduate students, as well as departments and schools, to better observe, assess, improve, and enhance their teaching practices. Such consultations may include instructional or curricu-

lum design assistance, creation of models for evaluating teaching, videotaping of classes for review, classroom observation, or interviewing students to gather anonymous feedback for the instructor.

Programs on teaching. These programs include a broad range of offerings across such categories as audience (from a guest speaker on effective lecturing for all university faculty, to a workshop on active learning for physics teaching assistants), length (from a semester-long credit-granting graduate course on teaching sociology, to a one-hour lunch discussion about diversity in the classroom), and incentives for participation (from a required orientation for all new teaching assistants to a voluntary discussion group on teaching with cases, to a stipend-funded fellows program on service learning).

Grants, awards, and other incentives. Incentives are offered to motivate improvement in teaching or to reward excellence in teaching. These incentives can take a variety of forms, such as grants or release time for course redesign or other curricular innovations; fellows programs to build teaching-improvement support between peers; or financial support for attending professional conferences.

Print and electronic resources. These resources typically include libraries of books, videotapes, and articles on a variety of issues pertaining to teaching and learning in higher education. Some centers or programs publish their own newsletters or develop websites to further highlight research, principles of good practice, or other explorations on teaching.

Leadership and Constituencies

The people who lead teaching-support efforts likewise represent a broad range of backgrounds and institutional status. A 1996 survey of POD members (with a 46% response rate) revealed that of the 517 respondents, 53 percent were women; 90 percent were white; 77 percent had a doctorate as the highest degree earned; 26 percent had their graduate degree in education (versus 12% in psychology, and 11% in English); 44 percent had a faculty job classification (versus 36% with administrative or staff status); 44 percent had part-time appointments in faculty development (versus 30% with full-time); and 59 percent worked in programs or centers that report to a provost or other chief academic officer (versus 16% to a dean).

Teaching-improvement programs and centers often serve faculty and graduate students from across the entire institution, while others are dedicated to a particular school or division. The distinct mission and curricular changes of many professional schools, in particular, has motivated the creation of separate support units, such as Harvard Medical School's Office of Educational Development, established in 1985.

In a similar vein, participants vary in their level of motivation and reasons for using the resources and services offered: some are strongly encouraged or even required to participate by administrators, while others are more intrinsically motivated to examine their teaching or to learn innovative practices. In order to create an open environment for its constituency, most centers have a policy of confidentiality, and distance themselves from the formal review processes at the institution.

Assumptions and Impact

Some core assumptions infuse most teaching-improvement programs or centers: (1) that teaching practices can be learned and developed (versus the view that good teachers are born, not made); (2) that knowledge of a subject does not necessarily translate into effective teaching of that subject; (3) that the educational research literature can offer models and strategies for improving teaching; and (4) that great teaching, like all scholarly activity, is a constant process of inquiry, experimentation, and reflection.

Assessing the impact of teaching-improvement centers and programs is a complicated and sometimes elusive process: John P. Murray describes how in some programs, "faculty participation is often low," and those "most in need of development are the least likely to participate," making it difficult to judge whether or not these initiatives "cause any substantial or lasting changes in the classroom" (pp. 59–60). On the other hand, Arlene Bakutes claims that "research data indicate that faculty development centers and their counterparts are successful," citing a University of Delaware survey showing that 73 percent of faculty respondents made changes to their teaching due to their work at that university's Center for Teaching Effectiveness (p. 170). Jerry G. Gaff asserts that "faculty development has moved slowly from a fragmented, often misunderstood, and peripheral position to an integrated, better understood, and more centrally located position of importance" and is "on the verge of becoming fully institutionalized in American higher education" (p. 173).

See also: College Teaching; Teaching and Learning, ***subentry on*** Higher Education.

BIBLIOGRAPHY

Angelo, Thomas A., and Cross, K. Patricia. 1993. *Classroom Assessment Techniques: A Handbook for College Teachers,* 2nd edition. San Francisco: Jossey-Bass.

Bakutes, Arlene Pickett. 1998. "An Examination of Faculty Development Centers." *Contemporary Education* 69:168.

Boyer, Ernest L. 1990. *Scholarship Reconsidered: Priorities of the Professoriate.* Princeton, NJ: Carnegie Foundation for the Advancement of Teaching.

Chism, Nancy Van Note. 1998. "Preparing Graduate Students to Teach: Past, Present, and Future." In *The Professional Development of Graduate Teaching Assistants,* ed. Michele Marincovich, Jack Prostko, and Frederic Stout. Bolton, MA: Anker.

DeZure, Deborah, ed. 2000. *Learning from "Change": Landmarks in Teaching and Learning in Higher Education from "Change" Magazine 1969–1999.* Sterling, VA: Stylus.

Erickson, Glenn. 1986. "A Survey of Faculty Development Practices." In *To Improve the Academy,* Vol. 5. Joint publication of Professional and Organizational Development Network in Higher Education and National Council for Staff, Program and Organizational Development. Stillwater, OK: New Forums.

Gaff, Jerry G., and Simpson, Ronald D. 1994. "Faculty Development in the United States." *Innovative Higher Education* 18:167–176.

Glassick, Charles E.; Huber, Mary Taylor; and Maeroff, Gene I. 1993. *Scholarship Assessed: Evaluation of the Professoriate.* San Francisco: Jossey-Bass.

Graf, David L.; Albright, Michael J.; and Wheeler, Daniel W. 1992. "Faculty Development's Role in Improving Undergraduate Education." In *Teaching in the Information Age: The Role of Educational Technology,* ed. Michael J. Albright and David L. Graf. San Francisco: Jossey-Bass.

Lewis, Karron G. 1996. "Faculty Development in the United Sates: A Brief History." *International Journal for Academic Development* 1(2):26–33.

McKeachie, Wilbert J. 1991. "What Theories Underlie the Practice of Faculty Development?" In *To Improve the Academy,* Vol. 10, ed. Kenneth A. Zahorski. Stillwater, OK: New Forums.

Murray, John P. 1999. "Faculty Development in a National Sample of Community Colleges." *Community College Review* 27(3):47–65.

Tice, Stacy Lane; Gaff, Jerry G; and Pruitt-Logan, Anne S. 1998. "Preparing Future Faculty Programs: Beyond TA Development." In *The Professional Development of Graduate Teaching Assistants,* ed. Michele Marincovich, Jack Prostko, and Frederic Stout. Bolton, MA: Anker.

Wright, Barbara D. 2000. "Assessing Student Learning." In *Learning from "Change": Landmarks in Teaching and Learning in Higher Education from "Change" Magazine 1969–1999.* Sterling, VA: Stylus.

Wright, Delivee L. 2000. "Faculty Development Centers in Research Universities: A Study of Resources and Programs." In *To Improve the Academy,* Vol. 19, ed. Matthew Kaplan. Bolton, MA: Anker.

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CENTRAL ASIA

See: Eastern Europe and Central Asia.